to similar rates as matched related and matched unrelated recipients. Infection and relapse remain the most common causes of mortality amongst all 3 groups, suggesting that further investigation is warranted to reduce the incidences of both outcomes.

487

Hematopoietic Recovery after in-Vivo T-Cell Depleted Allogeneic Stem Cell Transplant-Effects of Major ABO Incompatibility, CMV Viremia and Acute Gvhd

Ronit Reich Slotky [1], Naima Al-Mulla [2], Rania Hafez [3], Javier Segovia [4], Sebastian Mayer [5], Adrienne Phillips [5], Tsiporah B. Shore [5], Jingmei Hsu [5], Yen-Michael Sheng Hsu [6], Ljiljana V. Vasovic [7], Ruchika Goel [6], Melissa Cushing [6], Koen van Besien [5], ***Usama Gergis*** *[5]. [1] New York Presbyterian Hospital, New York, NY; [2] Hamad Medical Corporation, Doha, Qatar; [3] Assuite University School of Medicine, Assiute, Egypt; [4] Central Military Hospital of Bogota, Bogota, Colombia; [5] Weill Cornell Medical College, New York, NY; [6] Weill Cornell Medicine, New York, NY; [7] Pathology, Weill Cornell Medicine, New York, NY*

Background: Transfusion support after allogeneic transplantation is closely associated with morbidity, cost and may also affect long-term outcome. To better predict the determinants of hematopoietic recovery of allogeneic hematopoietic stem cell transplantation (HSCT) recipients, we analyzed 214 consecutive patients at our institution from January 2012 to December 2013.

Patients and methods: We evaluated surrogate parameters for adequate hematopoietic recovery on day 100: Hemoglobin ≥10 g/dl, packed red blood cells (PRBCs) transfusion independence, platelets transfusion independence and independence from granulocyte colony stimulating factor (GCSF) support. We excluded patients who experienced early (in the first 4 months) relapse (n = 28), non-relapse mortality (n = 28) or who had prolonged hospital stay before day 100 for transplant related complications (n = 54). One hundred and four patients had uneventful recovery through day 100. The majority of patients received Fludarabine and melphalan conditioning (88%). Approximately one third each of the patients had HLA-identical related, HLA-matched unrelated donors or underwent haplo-cord transplantation. Recipients of HLA-identical related or unrelated donor transplant received alemtuzumab and post-transplant tacrolimus. Haplocord recipients received thymoglobulin and post-transplant tacrolimus and mycophenolate. The statistical analyses were performed using STATA v14.1 (Stata Corp, TX, USA). Continuous variables were compared using two-sided t-tests and categorical variables were compared using Pearson c^2 and Fisher's exact tests. Differences were considered significant at *P*-values < .05.

Results: There was a significant and marginally significant correlation between Major ABO incompatibility and platelets (OR = 4.7, *P* = .043) and PRBCs (OR = 2.6, *P* = .053) transfusion dependence. CMV viremia significantly correlated with GCSF dependency (OR 3.0, *P* = .037), while acute GVHD significantly correlated with prolonged anemia (OR 3.7, *P* = .005). There was no effect of graft type alone on hematopoietic recovery.

Conclusion: Major ABO incompatibility, CMV viremia and acute GVHD are major predictors of prolonged hematopoietic recovery. Hematopoietic recovery of umbilical cord blood is similar to adult matched related and unrelated grafts.

488

Tacrolimus Levels and Correlation to Age and Weight Calculation

Mary Beth Seegars*, Janet Tooze, Scott Isom, Brandi Anders, LeAnne Kennedy, Cesar Rodriguez. Wake Forest Baptist Health, Winston-Salem, NC*

Background: Tacrolimus (FK) has become one of the key calcineurin inhibitors routinely used to reduce the risk of graft-versus-host-disease in patients undergoing allogeneic stem cell transplant (SCT). As non-ablative regimens have increased the number of transplants in the geriatric population, the data from initial studies may not accurately reflect our current transplant patients. Although the mechanism of action in elderly patients is similar, the metabolism and tolerability may be different. The narrow therapeutic index, drug interactions, and metabolism via the CYP450 pathway present unique challenges to achieving therapeutic drug levels. Current dosing at our institution relies exclusively on actual body weight (ABW) without taking into account age, gender, serum albumin, and ideal body weight (IBW). With this retrospective study, we explore the impact these factors may have on tacrolimus serum concentrations and associated toxicities.

Methods: We performed a chart review of patients over the age of 18 who received tacrolimus as part of their allogeneic SCT at our center between 2014 and 2017. The following variables were obtained from the medical records: age, gender, ABW, height, IBW, initial FK dose, serum albumin, and FK trough levels within the first 2 weeks. Patients who did not have FK levels drawn within 5 days of starting treatment, those who received concomitant CYP inhibitors without dose adjustment, and those who died within 30 days from SCT were excluded.

Results: Ninety-five patients met the criteria of which 59 were males and 36 females. Forty-six patients were supratherapeutic at first trough and 76 were supratherapeutic at either the first, second, or third level. Of the patients with supratherapeutic levels, 34.2% had clinical toxicity (n = 26). Male patients (*P* = .0006) and patients over age 65 (*P* = .0399) were more likely to be supratherapeutic at first tacrolimus trough. After adjusting for age and gender, the odds of having a supratherapeutic FK trough were 3.1 times higher for every .5 mg increase with ABW dosing (when using IBW as baseline).

Conclusions: The current patient population undergoing allogeneic SCT requires a revised strategy for optimal care. The data presented here suggests male gender and age over 65 are predictive of having a supratherapeutic first FK trough which may favor the use of a lower starting dose. Similarly, the higher supratherapeutic events in patients with a greater difference between ideal and actual weights hints at improved dosing when the IBW is used in overweight patients. Our study suggests that age, gender, and IBW should be factored into tacrolimus dosing to prevent overtreatment and toxicities. Further prospective studies are needed to confirm these observations.

489

Hospital Length of Stay and Impact of Readmission in the First 100 Days of Allogeneic Stem Cell Transplantation: Comparison among Alternative Donor in Pediatric and Adult Population

Mariana Nassif Kerbauy *[1], Lucila Nassif Kerbauy [1], Iracema Esteves [1], Juliana DallAgnol Rocha [2], Renata Leati Stanzione [1], Morgani Rodrigues [3],*

Juliana Folloni Fernandes [4], Jose Mauro Kutner [1], Jairo J.N. Sobrinho [3], Luiz Fernando Alves Lima Mantovani [4], Fabio R. Kerbauy [5], Andreza Feitosa Ribeiro [6], Nelson Hamerschlak [7]. [1] Hospital Israelita Albert Einstein, Sao Paulo, Brazil; [2] Israelita Albert Einstein Hospital, São Paulo, Brazil; [3] Hematology and Bone Marrow Transplantation Dept, Hospital Israelita Albert Einstein, Sao Paulo, Brazil; [4] ITACI—Instituto da Criança—Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil; [5] Hematology and Bone Marrow Transplantation Department, UNIFESP (Universidade Federal de Sao Paulo), Sao Paulo, Brazil; [6] Oncology and Hematology Department, Hospital Israelita Albert Einstein, Sao Paulo, Brazil; [7] BMT, Hospital Israelita Albert Einstein, Sao Paulo, Brazil

Background: Allogeneic stem cell transplantation (allo-HSCT) is a high-cost procedure, mainly represented by length of hospitalization, as well as hospital readmissions. Different types of alternative donor may impact differently on the costs of this procedure. Objective: To evaluate the impact of the cell source, type of transplant and age at the time of hospitalization in different types of alternative allo-HSCT.
Method: A retrospective analysis of consecutive patients submitted to allo-HSCT at our institution from Jan/2010 to Jan/2017.
Results: 188 patients were included in our analysis, 73 children and 115 adults. Regarding the type of transplant, 72 were haploidentical(haplo-HSCT), 82 Matched-unrelated donor (MUD) and 34 umbilical cord blood (UCB). Regarding the cell source, 57 patients (30.3%) received mobilized peripheral blood cells, 98 (52.1%) bone marrow source (BM). Regarding the conditioning regimen, 94 (50%) were myeloablative, 48 (25.5%) non-myeloablative and 46 (24.4%) were reduced intensity regimen (RIC). In our population, readmission until day+100 correlated with worse overall survival ($P = .006$). The median length of stay in the entire group was 56 days until D +100 and 60% of patients who had been discharged were readmitted. In the pediatric group, it was 65 days and in the adults group 52 days. Regarding the type of transplant, in the MUD group, 41/63 (65%) of those who had been discharged were readmitted and 19/82 (23.1%) died before day +100. The median length of hospitalization was 50 days. In the haplo-HSCT group, 9/72 (12.5) died before day +100, 35/63 (55.5%) of patients were readmitted, with a 59-day hospitalization time. In the UCB group, 10/34 (29.4%) died before day +100, 66.6% of alive patients were readmitted before day +100 with a 66.5-day hospitalization time. There was a statistically significant difference when compared MUD versus UCB ($P = .027$), with no statistical difference between MUD versus haploidentical ($P = .305$) or cord blood versus haploidentical ($P = .152$). Regarding the conditioning regime, in the myeloablative group, 58.3% were readmitted, with a 57.5 day-stay. In the non-myeloablative group, 61.3% were readmitted with a 54-day stay and in the RIC group, 68.5% were readmitted, with a 56-day stay. Regarding the cell source, 63.4% of the patients who used peripheral blood were readmitted, with a 57-day stay and 59.5% of those who used BM were readmitted, with 51.5-day stay, compared to 66.6% of those who used cord blood, with hospitalization length of 66.5 days.
Conclusion: In our population, we found no statistically difference in hospitalization length between MUD and haplo-HSCT, and cord blood correlated with longer hospitalization compared to MUD. More studies on cost effectiveness among different types of alternative donors need to be carried out, especially in low-income countries.

490

Does Absolute Lymphocyte Count at Day +30 Predict Survival and Acute Graft Versus Host Disease after Allogeneic Hematopoietic Stem Cell Transplant?

Daniel J. Lee *[1], Prashant Jani [1], Pritam Tayshetye [1], Gina Berteotti [1], Amy Tang [2], Anna Koget [1], Prerna Mewawalla [1], Santhosh Sadashiv [1], Cyrus Khan [3], Salman Fazal [1], John Lister [1]. [1] Division of Hematology and Cellular Therapy, Allegheny Health Network Cancer Institute, Pittsburgh, PA; [2] Division of Autoimmunity, Allegheny Health Network, Pittsburgh, PA; [3] Western Pennsylvania Cancer Institute, Allegheny Health Network, Pittsburgh, PA*

Background: Many variables may affect outcome following hematopoietic stem cell transplant (HSCT). Absolute lymphocyte count (ALC) after HSCT might be predictive of acute Graft Versus Host Disease (aGVHD), non-treatment related mortality (NTRM) and overall survival (OS). Two studies, one by Gul et al. (2015) [1] and another by Haesook et al. (2015) [2], showed that lower day+30 ALC correlated with poorer OS, increased NTRM and severe aGVHD.
Objective: To conduct a review of allogeneic HSCT patients performed at our institution from 2010 to 2017, in an attempt to validate the results Gul and Haesook.
Methods: We identified 184 patients who underwent T-cell replete, allogeneic HSCT. The recipient was female (n = 71), the donor was a sibling (n = 55) or MUD (n = 129). No haploidentical transplants were included in this analysis. Myeloablative conditioning (n = 86) consisted of Fludarabine 50 mg/m^2/day d–6 to d–2, Busulfan 3.2 mg/kg/day d–5 to d–2 and TBI 200 cGy/day on d–1 and d0. Reduced intensity conditioning (n = 85) consisted of Fludarabine 30 mg/m^2/day d–6 to d–2 and Busulfan 3.2 mg/kg/day d–3 and d–2. Other conditioning regimens were given to 13 recipients. All patients received post-transplant immunosuppression with mycophenolate mofetil and tacrolimus. All recipients received anti-microbial prophylaxis with ciprofloxacin (or another fluoroquinolone), fluconazole and acyclovir.
Results:

	aGVHD	No aGVHD	Total	Incidence of aGVHD
Day +30 ALC ≤.4 × 10^9 cells/L	23	60	82	.28
Day +30 ALC >.4 × 10^9 cells/L	28	73	101	.28
Total	51	133	184	$P = .99$
Day +30 ALC ≤.2 × 10^9 cells/L	5	28	32	.16
Day +30 ALC >.2 × 10^9 cells/L	46	105	152	.30
Total	51	133	184	$P = .07$

	Median Overall Survival (days)
Day +30 ALC ≤.2 × 10^9 cells/L	183
Day +30 ALC ≤.4 × 10^9 cells/L	253
Day +30 ALC >.4 × 10^9 cells/L	243

At d+30 after transplant the ALC with either a .4 or .2 threshold failed to predict outcome in our patients. In contrast to the study by Gul an ALC ≤.2 showed a trend to less aGVHD.
Conclusion: Our results failed to confirm that day+30 ALC ≤.4 × 10^9 cells/L or ≤.2 × 10^9 cells/L is predictive of aGVHD. Paradoxically using a cutoff of ≤.2 × 10^9 cells/L showed a trend towards less aGVHD in our study.